Chemistry 101, Lecture Sect. 010 **GREENE-JOHNSON** **Fall 2010**
Sections 011 & 012

General Chemistry A (101)

Instructor: Willetta Greene-Johnson, Ph. D., Room 307 Cudahy Science Hall 773-508-3537
Who am I: **A chemical physicist interested in surface optico-physical interactions and mildly interested in (1) thermodynamical (2) unstable systems; (3) producer, composer, orchestrator, pianist, sequencer, and conductor. My vocal ensemble also has recorded three compact discs—plans are in the making for the 2nd half of our current project. One of my songs was doubly tracked on a Grammy award winning choral gospel CD in 2004. The same song treks on a DVD (released April 2008).**

Physical Office Hours : Wednesday 10:25 A – 11:25 P
***Email* Office Hours (ONLY)**: Thursday 10:00 A – 11:00 A **wgreene@luc.edu**

Required: Chemistry & Chemical Reactivity, John C. Kotz, Paul M. Treichel and John Townsend, Thomson/Brooks/Cole, Inc, 1st ed., Mason, Ohio, 2009; IBSN: 978-0-495-79005-1. **(The accompanying OWL-CD is NOT required in this section, but *may* be required in a Chem 102 section.)**

Chemistry 101 Course Packet, authored by the instructor. This essential lecture packet is available online at **www.universityreaders.com** . The course packet will be mailed to you within a few days of ordering, but you'll have immediate online access to the first 10 or so pages once order is completed.

Meetings: Lectures are scheduled MWF in Flanner Hall, Room 133, at 12:35 P –1:25 P. You must also be registered in discussion section 011, 012**.**

Discussions: meet on Wednesday afternoons according to the following schedule:

Section	Instructor	Location	Time
011	**Dr. Greene-Johnson**	FH-105	Th: 11:00 A – 12:20 P
012	**Dr. Greene-Johnson**	FH-105	Th: 2:30 P – 3:20 P

Due to the large number of students / focus sections that are matriculated through this course yearly, ***there can be absolutely no alteration of this schedule.***

Course Description: A study of chemical principles and generalizations with emphasis on the development of a scientific attitude and an understanding of the fundamental concepts of chemistry.

Calculators: Any scientific calculator is probably sufficient, however calculators cannot be shared while exams are in progress and their cases/covers must be removed. Be sure that you are familiar with your calculator and that its batteries are in good condition, especially on the day of exams. The student is responsible for having his calculator on an exam day.

Blackboard Connection: The syllabus, homework assignments for the semester, discussions, and discussion answers will be posted at the following website: **www.luc.edu**, look under *Technology*, click on **blackboard**). Students possessing a Loyola email address are able to access this site.

Additional Information: For your convenience, test taking tips are listed on page 5 of this syllabus, as well as a protocol regarding soliciting a recommendation from me, should you desire one and qualify (see protocol). Additionally, the academic fall calendar and bookstore information is listed on page 7.

CHEMISTRY 101 Tentative Schedule of Topics

Week or Day	Topic	Ch(s)	approx. pages
8/30 – 9/3	Intro Matter, Measurements, Significant Figures, Conversions Periodic Table Overview / Atomic Model	1 2	1 – 41 50 – 97
9/6	LaBoR DaY –no classes		
9/8 – 9/10	Atomic/Formula Masses ; Mole	3	112 – 120;
9/13 - 9/17	Stoichiometric Calculations	4	159 – 162;
9/20 – 9-24	Limiting Reactant; Theor./Actual Yield	4	163 – 167;
9/22	Review for Exam 1		Opt'l—Thus, see disclaimer below
9/24	EXAM 1 - Remember your (uncovered!!!) calculator. Take your bags to the front. Leave every 3rd row empty. No cell phones or PDA's (smart or otherwise) while taking exam.	1 – 4 only parts that we covered	Concerning reviews, if student desires information, that student ONLY is responsible to ATTEND or otherwise obtain the information. Handouts MAY or MAY NOT be disseminated.
9/27– 10/1	Aqueous Rxns (1) Precipitation (2) Acid Base Reactions	3	121 – 130; 131 – 140
10/4 – 10/8	A/B Reactions; Redox Reactions	3	141 – 144
10/11,10/12	Mid- FALL break		Hurrah!
10/13, 10/15	Redox Reactions	3	145 - 148
10/18 – 10/22	Ideal Gas; Calc'ns; Molar Mass Density / Stoichiometry; Dalton's Law /Kinetic Theory / Effusion	11 11	515 – 529 530 – 545
10/25	Thermochemical Eq'ns; calorimetry	5	208 – 221
10/27	Review for Exam 2		Optional—see disclaimer above
10/29	EXAM 2	3, 5, 11	Obviously 5 we "got to"
11/1 – 11/5	Enthalpy / Hess's Law; Light & Matter; Hydrogen Bohr Model	5 6	222 – 239 268 – 281
Nov. 5	Last day to withdraw w/o penalty		hopefully not scary?
11/8 – 11/12	Pauli's Exclusion Principle PEP); e^- conf'n / Quantum #s; Paramagnetism ;Orbital Diagrams /Hund's Bus Rule	6 6 6	PEP: 305 – 306; 282 – 285 285 – 292
11/15 – 11/17	Periodic Table Trends: size, EN, IP, EA; Covalent Bonding/Lewis structures; exceptions; Resonance structures; VSEPR model; electronegativity, σ,π bonds	7 8 9	319 – 330 349 – 371; 405 – 416
11-19	Review for Exam 3		Optional—see disclaimer above
11/22	EXAM 3	5 - 9	
11/24 – 11/28	…THANKSGIVING BREAK…		Enjoy!
11/29	Hierarchy of Interstitial Forces	12	590 – 614
12/1, 12/3	Liquid/Vapor Equilibrium / Phase Diagram;	12 13	555 – 580 13: 606 – 609;
12/6 – 12/10	MO Theory	9	: 422 – 432
12/ 15	REVIEW for FINAL		place and time TBA
12/17	FINAL 9:00 A – 11:00 A	1-9, 11-13	Location TBA, *probably (maybe)* Flanner Hall 133

HOMEWORK[1]: is not graded, but student is strongly encouraged to do it, and to do it it well. A similar assessment is made via weekly discussion assignments. Additionally, **exam representative** problems will be distributed in discussions. **End-of-Chapter Problems:** Students who are making good progress in the course should be able to solve, independently, most or all of the end-of-chapter problems in the textbook, as well as a number of the problems in discussions. A group of exemplary problems is listed below as "assigned" problems. There are on average 20-25 of these per chapter.

Assigned Problems (for Course)

Chapter 1, pg. 21: 1, 7, 9, 11, **pg. 43:** 1, 3, 7, 9, 13, 19, 21, 25, 27, 31, 35, 39, 43, 47, 51, 55, op: 59

Chapter 2, pg. 100: 3, 5, 9, 13, 21, 25, 29, 33, 39, 41, 45, 49, 51, 55, 61, 64 (c), 69, 73, 79, 81, 83

Ch. 2, wk 3 pg. 105: 102 (**hint :** calculate molar masses. Dissoc'd $BeCl_2$ has 3 ions, etc.), 109, 117a, 119,121, 129

Chapter 3, pg. 152: 1, 3, 5, 7, 11, 15, 19, 25, 27, 29, 33, 35, 41, 45, 49, 53 (pH: **equil'm** conc'n of H^+ ions, $[H^+] \equiv 10^{-pH}$), 57, 59, 67, 69, 71, 75, 69, 73

Chapter 4, pg. 195: 1, 5, 7, 11, 13, 17 a-c, 19, 21, 25, 29, 31, 35, 39, 43, 47, 53, 57, 61, 67, 75

Chapter 5, pg. 242: 3, 7, 11, 13, 17, 19, 23, 29, 31, 35, 37, 39, 43 (Hess's Law, 2 steps), 49, 51, 61, 65, 67, 71, 75 a-b, 79 a, 87

Chapter 6, pg. 297: 3, 7, 11, 13 [$\Delta E = 1.196 \times 10^5$ (kJ/mol)/nm ; λ in nm), 17, 19, 23, 27, 31, 35, 37, 43, 45, 51, 53 (see pg. 291 under d-orbitals) 57, 63, 67, 69

swap dash for 'orbital box'

Chapter 7, pg. 332: 1, 3, 7, 11, 15 (orbital diagram of Ga), 21, 25, 29, 31, 35, 37, 41, 45, 46, 51
Note: spdf ↔ full e- configuration, noble gas configuration ↔ shorthand config'n;

Chapter 8, pg. 395: 1, 5, 7, 11, 13, 15, 17, 19, 21, 25, 75 (problems like this one have appeared on Exam 3/Final), 27, 29, 33(a), 35, 37, 39, 41, 43, 47, 51, 55, Note: electron pair geometry↔ orbital AXE geometry, 57, 67, 73(b)

Chapter 9, pg. 434: 3, 7, 11, 13, 15, 17, 19, 21, 23, 29, 31, 33, 35,extra:43. Bond-order issues? if we "get there"

Chapter 11, pg. 546: 1, 3, 7, 11, 15, 17, 19, 23, 25, 27, 31, 33, 35, 39, 43, 45, 47, 49, 55, 59, 63, 77b-c, 87a

Chapter 12, pg. 580: 1, 3, 5, 7, 11 (***Clausius Clapeyron Eq'n***), 15, 17, 19, 21, 23 31, 34(d), 43(a), 49, ***extra***: 60 (best way, Cl-Cl equation numerical best fit)

Chapter 13, pg. 612: 19, 21, 23 (***Hess's Law***, partition process into 3 steps)

Examinations and Academic Honesty Three 50-minute exams and the final exam will be given on the dates below, also noted in the schedule.

Sept. 24, Oct. 29, Nov. 22

The 2-hour **final exam** will be administered on **Friday, Dec. 17** at **9:00 – 11:00 A** at a location to be announced (most likely FH-133). Your course grade will be determined from these exams by a procedure elucidated in the next section. ***The exams and the final exam are cumulative; i. e., will probably include material which has been tested on the previous exams***.

[1] The solutions to homework problems will be placed on 2-hour reserve at the Cudahy Library.

Academic Integrity All students are responsible for exercising the highest level of academic honesty while taking exams. The University policy on plagiarism and cheating is stated at: http://www.luc.edu/academics/catalog/undergrad/reg_academicintegrity.shtml in the online Catalogue of Undergraduate Studies. As in the past, **cheating will be SEVERELY dealt with, *minimally* costing the offender an F in the course. Which has happened before.**

Grading Scheme:

The scores of the three-hour exams, a final exam and *selected problems on the discussion worksheets* will be used to determine your course grade. **IF quizzes are administered, their points will count toward the discussion grade.** If an exam/discussion is missed for any reason, other than extenuating circumstances deemed admissible by the higher powers (University policy), that exam will be dropped, and/or that discussion will receive a score of 0 points. If a second exam must be missed, then in order to make up that second exam, a doctor's note and/or a letter from a guardian, supervisor, etc., must verify proof of illness. This written request must be presented to the instructor no later than 3 calendar days after the exam date (the following Monday), or no make-up exam can be administered.

Course grade will be determined in one of two ways:

Item	Method 1	Method 2
Exam 1	**20 %**	**20 %**
Exam 2	**20**	**20**
Exam 3	**20**	**One dropped: Ex. 1 or 2 or 3**
Discussion Work-sheets/ Quizzes	**10**	**10**
Final Exam	**30**	**50**

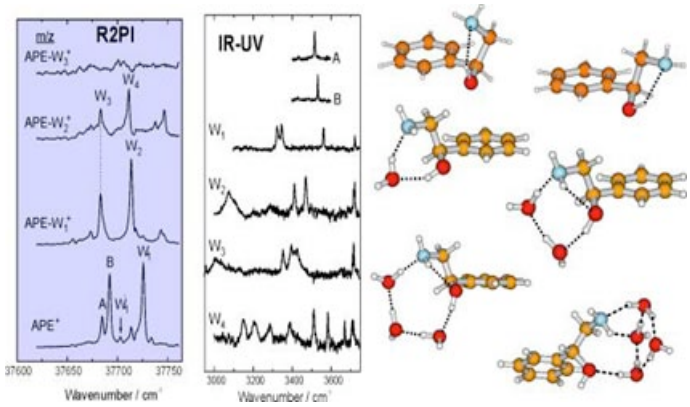
Whichever scheme benefits the student at semester's end will be employed. Note, at least two mid-terms must have been taken prior to the final, or else the student will receive an **F** in the course.

Please make every attempt to take the final exam on time. If the final exam is missed, the student will receive an automatic WF. If no action is taken, the WF will automatically revert to an F. The student must have valid documentation of why the exam was missed, and must contact the Dean's office of the college that she is registered in. **It is the student's responsibility** to coordinate the make-up exam between the dean's office and the instructor.

GRADING SCALE (for undergraduates, Loyola Chemistry Department.)

Grade Scale:					
A	≥ 90	**A-**	87-89		
B+	84-86	**B**	80-83	**B-**	77-79
C+	74-76	**C**	70-73	**C-**	67-69
D+	64-66	**D**	60-63	**D-**	57-59
F	< 57				

Laboratory: Chemistry 111, the general chemistry laboratory course, should be taken concurrently with the lecture course in general chemistry. The lecture and the laboratory courses are graded independently. Students should first consult the Chemistry Dept. Bulletin opposite the wall facing the chemistry office for information or they can contact **Dr. Angela Boerger**, the administrator of the laboratories.



Room Instructions on Exam Days

1) Find a seat as quickly as you can. Do not try to sit with friends or near one's usual area. The exam is only 50 minutes, so excessive delays will cut into exam-taking times.

2) Place your student ID conspicuously on your desk so that attendance may be noted (during exam).

3) Have several pencils/pens, eraser, etc. and a calculator in good working order.

4) Proctors have been instructed to confiscate the exams of any student using a calculator with its slipcover in place.

5) **Read over the entire exam**. You may find a problem in the middle, or at the end, that suits you better to start. The three or so minutes spent glancing over the entire exam will be more than compensated for by the strategy and priorities that you formulate. The recommended order to do problems is:

   (1) what you know well FIRST
   (2) what you're sure you can at least start NEXT
   (3) what you haven't have a clue for LAST

   I have tried to arrange problems in a reasonable order, but my perception and the student's will certainly differ in some aspect. So, take a few minutes to read over the exam and devise a strategy.

6) When you have concluded, turn in your exam to proctor or instructor. Leave as quietly and as expeditiously as possible as to not disturb other exam takers.

7) Normally, exams administered on Friday will be returned the following Wednesday. ***Please*** don't harangue the Chemistry staff (and certainly not the physics staff for a chemistry course!) As a general rule, I do not appraise them of my grading schedule. There is normally no issue, however final examination will take the longest to grade (about 6 days) because it is hand-graded. I promise you that I will move as swiftly and as accurately as I can!

Advanced Studies Recommendation Protocol

Later in your student career, you may require recommendations for graduate school, medical school, or the like. If I am chosen among your recommenders, the following policy ensues:

1. Student must generally possess GPA of 3.4 or above. However, if my time allows, a student might be considered if she or he presents a **written explanation** that reveals an exceptional circumstance accounting for a lower grade point average.

2. Student must provide a Microsoft Word-formatted document listing his/her official transcript GPA, contact information, deadline(s), and also all chemistry, biology and physics courses and labs that the student has take—in the following format (or Committee format, if you are applying through committee):

   a. GPA
   b. reliable, current email and telephone # that student checks *regularly*
   c. DEADLINE
   d. Table with header: course taken, instructor, grade

Example:

Course	Semester / year	Instructor	Grade
Chemistry 101	Fall /08	Dr. WGJ	A
Biology 210	Spring /10	Dr. Barbara Haas	B+

   e. If applying "outside the Committee"—see items 4,5 below, a list of all schools of the applicant and **ALL of their DEADLINES**.

   f. All cover forms, application packages, envelopes in one binder, folder, or otherwise secure containment, with like items paper-clipped together.

3. If I can do a recommendation for you, I'd love to read your personal statements, even in rough draft form. It tells me something about you and helps me to shape a recommendation. This article is not required, but I recommend it.

4. **It is STRONGLY recommended that the student applies through the Loyola Pre-Health Advisory Committee.** The Committee is well regarded by the medical/dental/pharmaceutical community, and its voice of endorsement will be a plus in student's application process. Also, eventually the student's personal statement, etc. must be strong, and well written. If the student applies via Committee, s(he) should provide a cover sheet obtained from the Office of Pre-health on the 2nd floor of Damen Hall.

5. ***APPLICATIONS OUTSIDE COMMITTEE***: If the student who I can recommend elects to apply outside of committee (apart from the Pre-Health Advisory committee), then she/he must perform steps 1-3 and email me at wgreene@luc.edu (and one other e-address that will be provided). Student will receive a doc file via emal. The student must open copy this file and type in each school or college address, **creating as many documents as the number of schools to which he/she intends to apply.** The student then must attach those documents and email all the attachments, along with doc items request in steps 1- 3 in one email, to myself.

LOYOLA UNIVERSITY CHICAGO FALL CALENDAR 2010

August 29 (midnight)	Sunday	Open registration ends
August 30	Monday	Fall Semester 2010 begins
August 30	Monday	Late and change registration begins Late registration fees apply
September 7	Sunday	Late and change registration ends Last day to withdraw without a "W" grade
September 3	Friday	Labor Day weekend begins Classes that begin at 4:15 p.m. or later do not meet
September 5	Sunday	Last day to withdraw from class(es) with a Bursar credit of 100%
September 6	Monday	Labor Day, Classes do not meet
September 7	Tuesday	Classes resume after Labor Day
September 13	Tuesday	Last day to convert from credit to audit or vice versa Last day to request or cancel pass/no pass option
September 13	Sunday	Early alert process begins (Last day of the 3rd week of the semester)
September 20	Sunday	Last day to withdraw from class(es) with a Bursar credit of 50%
September 27	Sunday	Last day to withdraw from class(es) with a Bursar credit of 20% (zero credit thereafter)
October 1	Friday	Last day to file applications for degrees awarded in May 2011 or August 2011 (Deans' offices)
October 8	Friday	Last day for students to submit assignments to change an "I" grade to a letter grade from the preceding Spring and Summer Semester/Terms to a letter grade; Faculty may set earlier deadlines with students
October 11-12	Mon. & Tues.	Mid-Semester Break: No classes
October 13	Wednesday	Classes resume after Mid-Semester Break
November 4	Thursday	Graduate, Non-GSB, Spring Registration Begins
November 5	Friday	Last day to withdraw with a grade of "W" After this date, the penalty grade of "WF" will be assigned
Nov. 24-28	Wed- Sun.	Thanksgiving Break: No classes
November 29	Monday	Classes resume after Thanksgiving Break
December 15	Wednesday	Study Day: No classes
December 17	**Friday**	**9:00 AM – 11:00 AM CHEMISTRY 101 Final Examination**